Current Situation of Waste Lead Acid Battery Recycling in Japan

日本における廃鉛バッテリーの回収、リサイクルの状況及び今後の方策

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Outline

• Japan has a car battery recycling system in which battery manufacturers are involved.
  – Battery manufacturers established the system (voluntary approach) in 1994.
  – The system was revised in 2014.

• The export of waste batteries has increased.
  – The battery recyclers can not get enough waste batteries in Japan.

• Recent Japan is more concerned with the resource problem of the waste battery than the environmental problem.
Recent movement of waste battery recycling in Japan

- **Market mechanism**
  - Illegal dumping problem
  - Used battery export
  - Resource problem

- **Environmental problem**
  - in Japan
  - in importing areas

- **Flow outside of the system** (Market mechanism)

- **New system**

- **Recycling system**
  - Car battery recycling system
  - Discussion about new system
Change in lead price in Japan (JPY/kg)

Source: Nikkan Shikyo Tsushinsha
Early 1990s

- Decrease of the lead price
  - Yen appreciation against the dollar
  - Increase of pollution control cost
  - Decrease in demand of lead
  - Decrease in the export of waste batteries by the international trade regulation of hazardous waste, Basel Convention

- Prices of some waste batteries became negative.
- Illegal dumping of waste batteries became a social problem in the early 1990s.
The battery manufacturers (excluding importers) established a car battery recycling system in 1994.

The battery manufacturers were required to set up a situation where a battery user can deliver the waste battery to a battery dealer free of charge.

The battery manufacturers were required to buy a certain amount of secondary lead from battery recyclers.

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**Diagram:**

- **User**
  - New disposal
  - Waste battery
  - free of charge

- **Battery Dealer**
  - New
  - Waste battery

- **Battery Manufacturer**
  - Secondary lead

- **Battery Recycler**
  - disposal
Problem of the recycling system

• The battery manufacturers had to buy the secondary lead from battery recyclers **even when the price is higher.**
  – They could not select the cheaper lead.

• The national battery manufacturers lost competitiveness in the global market.

• The battery importers increased their market share in Japan.
Discussion about the revision of the car battery recycling system

• In 2005, the government held a committee meeting about a new battery recycling system.
  – One of the discussion points was to involve the battery importers in the system.

• In that situation, the export of used battery to Vietnam and Hong Kong was rapidly increased.
  – Environmental problems were concerned in the importing countries.
  – The export/import control was strengthened.

• The lead price gradually increased around 2005.
• Revision of the recycling system was postponed.
The number of exported car batteries

Source: Ministry of Finance, Japan. Statistical Code: '850710000' (new & used battery)
New battery recycling system in 2014

• Lead Acid Storage Battery Recycle Association, SBRA, started a new car battery recycling system in 2014.
  – The SBRA consists of the battery manufacturers and importers.

• The SBRA is required to set up a situation where the battery user can deliver the waste battery to the dealer free of charge.
  – The SBRA (manufacturers and importers) pays the costs for the battery collection and dismantling.

• The manufacturers are not required to buy a certain amount of secondary lead from recyclers.
  – Secondary lead is traded under the market mechanism.
Current situation: resource problem

- The export of waste batteries to South Korea has increased since the mid-2000s.
- The lead price became relatively higher.
  - Waste batteries are traded at positive prices outside of the battery recycling system.
- Recyclers can not do business because they do not collect enough batteries.
  - Resource problem became a large concern in recent Japan market.
  - The government and researchers raise awareness about the flow of waste batteries.
The export volume of waste battery (kg)

Source: Ministry of Finance, Japan. Statistical Code: '854810000' (waste battery)
Research project

• In 2014-15, the METI Kyushu (Bureau of Economy, Trade and Industry) and the NSST (Nippon Steel and Sumikin Technology) conducted a questionnaire survey about the flow of waste batteries in Kyushu area.
  – Kyushu area is located in the west of Japan and very close to South Korea.

• From the survey, they found out that the 50% of waste batteries generated in Kyushu area were exported to South Korea.
  – They also showed that the export price was higher than the domestic price.

• However, we can not precisely know where and how the waste batteries would be recycled.
Importance of flow control

• When waste batteries are traded at negative prices, they are regulated by the Waste Management Law.
  – Battery owners are required to report on the delivery of waste batteries to the government.
  – Therefore, we can know the flow of waste batteries.

• However, waste batteries are traded at positive prices in reality.
  – Battery owners do not have an obligation to report on the delivery of waste batteries.
  – We can not know the flow of waste batteries in reality.

• Waste batteries include hazardous materials.
  – It is important to understand how many waste batteries are generated and where they are distributed.
  – We need a system where battery owners report on the delivery regardless of the waste battery price.
Thank you for your attention.